

the portions being added are underlined; and the portions being deleted are enclosed in brackets.)

Please add new Claims 15-61, which are set forth in the enclosed Appendix E.

#### **REMARKS**

The response that was filed on March 7, 2002 was completely responsive to the outstanding Office Action that was mailed on September 7, 2001. This supplemental response merely amends the claims and provides a more detailed explanation why the claimed invention is novel and nonobvious over the cited the art.

Hereinafter, the claims that are pending after the entry of the amendments in the March 7, 2002 response and before the entry of the amendments in this supplemental response are called "currently pending claims." This supplemental response amends currently pending Claims 1-14 and adds new Claims 15-61. Upon amendment, the above-identified U.S. patent application will have six independent claims (amended Claims 1, 6, 8, and 10, and new Claims 15 and 47) and 61 total claims (amended Claims 1-14 and new Claims 15-61). The Applicants previously paid for three independent claims and 20 total claims. Therefore, a fee is due for three excess independent claims and 41 excess total claims; and a check for this fee is enclosed herewith.

Support for amended Claim 1 can be found in, inter alia, originally filed Claims 1, 6, 8, 10, 12, and 14. Support for amended

Claims 2-5, 7, 9, and 11-14 can be found in, inter alia, originally filed Claims 2-5, 7, 9, and 11-14, respectively.

Support for amended Claim 6 can be found in, inter alia, originally filed Claims 1 and 6. Support for amended Claim 8 can be found in, inter alia, originally filed Claims 1 and 8. Support for amended Claim 10 can be found in, inter alia, originally filed Claims 1 and 6.

Support for new Claims 15, 17-28, and 35-38 can be found in, inter alia, the originally filed Claim 1.

Support for new Claims 16, 41-45, and 48 can be found in, inter alia, the originally filed Claims 2-5.

Support for new Claims 29 and 31 can be found in, inter alia, originally filed Claims 6, 8, and 10.

Support for new Claims 30 and 32-34 can be found in, inter alia, originally filed Claims 7, 9, and 11 and line 15 on page 5 of the specification (which discloses the use of urea).

Support for new Claim 39 can be found in, inter alia, originally filed Claim 7 and line 15 on page 5 of the specification (which discloses the use of urea).

Support for new Claim 40 can be found in, inter alia, originally filed Claim 9.

Support for new Claims 46 and 61 can be found in, inter alia, originally filed Claims 2-5, 7, 9, 11, and 13 and lines 15-16 on page 5 of the specification (which discloses the use of urea and water).

Support for new Claim 47 can be found in, inter alia, originally filed Claim 1 and lines 14-16 on page 4 of the specification.

Support for new Claims 49, 50, 52, 54, 56, 58, and 60 can be found in, inter alia, lines 14-16 on page 3 and lines 22-23 on page 4 of the specification.

Support for new Claims 51, 53, 55, 57, and 59 can be found in, inter alia, lines 14-16 on page 4 of the specification.

In items 3 and 4 on pages 1 and 2 of the outstanding Office Action, the Examiner rejects currently pending Claims 1-6, 8, 10, 12, and 14 for allegedly being obvious in view of Pittenger's U.S. Patent No. 5,827,740, Song's U.S. Patent No. 5,834,032, and Astrup's U.S. Patent No. 5,422,352. The Applicants respectfully traverse this rejection because the prior art does not teach or suggest the claimed invention.

Amended independent Claim 1 claims a growth stimulating composition for a plant, wherein the composition is selected from the group consisting of Composition 1, Composition 2, and Composition 3; wherein Composition 1 consists essentially of Component A and one or more of Components B, C, D, E, F, G, and H; wherein Composition 2 consists essentially of Component C and one or more of Components A, B, D, E, F, G, and H; and wherein Composition 3 consists essentially of Component A and Component C and optionally one or more other components. Thus, the composition claimed in amended Claim 1 includes Component A and/or Component C.

Component A, which is a precursor compound of cyclic AMP, may be dibutyryl-cyclic AMP. Component C, which is a compound with the capacity to stimulate activity of adenylyl-cyclase enzymes, may be forskolin. According to the Examiner in the outstanding Office

Action, the Pittenger patent (e.g., Claim 4, which is dependent on Claim 2) discloses a composition comprising dibutyryl-cyclic AMP and/or forskolin. However, the Pittenger patent (see Claims 1 and 2 and lines 51-64 in column 4) also teaches that this composition further comprises mesenchymal stem cells and a substance (such as glucocorticoid) that induces stem cells to differentiate into the adipogenic lineage. In fact, the composition that is disclosed in the Pittenger patent must include mesenchymal stem cells and a glucocorticoid substance that induces stem cells to differentiate into the adipogenic lineage because Pittenger's composition is designed to induce human mesenchymal stem cells to preferentially differentiate into the adipogenic lineage.

The Pittenger patent does not teach or suggest that a composition comprising dibutyryl-cyclic AMP and/or forskolin may exclude mesenchymal stem cells and a glucocorticoid substance because if Pittenger's composition excluded mesenchymal stem cells and a glucocorticoid substance, then Pittenger's composition could not induce human mesenchymal stem cells to preferentially differentiate into the adipogenic lineage, as required by the Pittenger patent. Amended Claim 1 is nonobvious over the prior art because amended Claim 1 excludes mesenchymal stem cells and a glucocorticoid substance, which are two components that are required by the Pittenger patent. The composition claimed in amended Claim 1, which includes Component A and/or Component C, stimulates growth in a plant rather than inducing human mesenchymal stem cells to preferentially differentiate into the adipogenic lineage. And because amended Claim 1 specifically excludes mesenchymal stem cells and a glucocorticoid substance that induces stem cells to differentiate into the adipogenic lineage, amended independent Claim 1 is novel and nonobvious over the prior art.

Amended independent Claim 6 is also novel and nonobvious over the prior art. Amended independent Claim 6 claims a growth stimulat-

ing composition for a plant comprising at least one of Components A, B, C, D, and E, wherein the composition further comprises a mineral fertilizer. According to the Examiner in the outstanding Office Action (and as discussed in detail in the following five paragraphs), the Pittenger patent allegedly discloses a composition comprising Components A, B, and/or C; the Astrup patent allegedly discloses a composition comprising Component D; and the Song patent allegedly discloses a composition comprising Component E. Furthermore, according to the Examiner in the outstanding Office Action, the compositions that are described in the Pittenger patent, the Astrup patent, and the Song patent are related to each other because these compositions are each used to treat diabetes and/or obesity.

Component A, which comprises a precursor compound of cyclic AMP, may be dibutyryl-cyclic AMP; and according to the Examiner in the outstanding Office Action, the Pittenger patent discloses a composition comprising dibutyryl-cyclic AMP.

Component B, which comprises a compound with a capacity to inhibit activity of one or more phosphodiesterases, may be theophylline or caffeine; and according to the Examiner in the outstanding Office Action, the Pittenger patent discloses a composition comprising theophylline or caffeine.

Component C, which comprises a compound with the capacity to stimulate activity of adenylyl-cyclase enzymes, may be forskolin; and according to the Examiner in the outstanding Office Action, the Pittenger patent discloses a composition comprising forskolin.

Component D, which comprises an agonist compound of  $\beta$ -adrenergic receptors, may be isoproterenol; and according to the Examiner in the outstanding Office Action, the Astrup patent discloses a composition comprising isoproterenol.

Finally, Component E comprises arachidonic acid or a prostaglandin; and according to the Examiner in the outstanding Office Action, the Song patent discloses a composition comprising arachidonic acid.

Amended Claim 6, which claims a growth stimulating composition for a plant, is novel and nonobvious over the prior art because amended Claim 6 claims a mineral fertilizer, which is not taught or suggested by the prior art. The claimed mineral fertilizer is used to stimulate growth in plants; and there is no teaching or suggestion in the prior art that a mineral fertilizer can be used to treat diabetes and/or obesity. For example, the Pittenger patent, the Astrup patent, and the Song patent do not disclose or suggest a composition comprising a mineral fertilizer; and there is no teaching or suggestion in the prior art that a mineral fertilizer should be added to the compositions that are disclosed in the Pittenger patent, the Astrup patent, and the Song patent because these U.S. patents are not concerned with stimulating growth in plants. Consequently, amended independent Claim 6, which claims a composition comprising a mineral fertilizer and Component A, B, C, D, and/or E, is novel and nonobvious over the prior art.

Similarly, amended independent Claim 8 is novel and nonobvious over the prior art. Amended Claim 8 claims a growth stimulating composition for a plant comprising at least one of Components A, B, C, D, and E, wherein the composition further comprises a phyto regulator product. Amended Claim 8 is novel and nonobvious over the prior art because amended Claim 8 claims a phyto regulator product, which is not taught or suggested by the prior art. The claimed phyto regulator product is used to regulate plant growth; and there is no teaching or suggestion in the prior art that a phyto regulator product can be used to treat diabetes and/or obesi-

ty. For example, the Pittenger patent, the Astrup patent, and the Song patent do not disclose or suggest a composition comprising a phyto regulator product; and there is no teaching or suggestion in the prior art that a phyto regulator product should be added to the compositions that are disclosed in the Pittenger patent, the Astrup patent, and the Song patent because these U.S. patents are not concerned with regulating plant growth. Consequently, amended independent Claim 8, which claims a composition comprising a phyto regulator product and Component A, B, C, D, and/or E, is novel and nonobvious over the prior art.

In addition, amended independent Claim 10 is novel and nonobvious over the prior art. Amended Claim 10 claims a growth stimulating composition for a plant comprising at least one of Components A, B, C, D, and E, wherein the composition further comprises a phytosanitary product. Amended Claim 10 is novel and nonobvious over the prior art because amended Claim 10 claims a phytosanitary product, which is not taught or suggested by the prior art. The claimed phytosanitary product is used to promote plant growth; and there is no teaching or suggestion in the prior art that a phytosanitary product can be used to treat diabetes and/or obesity. For example, the Pittenger patent, the Astrup patent, and the Song patent do not disclose or suggest a composition comprising a phytosanitary product; and there is no teaching or suggestion in the prior art that a phytosanitary product should be added to the compositions that are disclosed in the Pittenger patent, the Astrup patent, and the Song patent because these U.S. patents are not concerned with promoting plant growth. Consequently, amended independent Claim 10, which claims a composition comprising a phytosanitary product and Component A, B, C, D, and/or E, is novel and nonobvious over the prior art.

New independent Claim 15 is also novel and nonobvious over the prior art. New Claim 15 claims a growth stimulating composition

for a plant, wherein the composition comprises Component A and/or Component C, wherein the composition further comprises Component D and/or Component E, and wherein the composition further optionally comprises Component B. (Please note that Components A, B, C, D, and E are described in detail in paragraphs 2 on page 7 of this supplemental response through paragraph 1 on page 8 of this supplemental response.)

New Claim 15 is novel and nonobvious over the prior art because the prior art does not teach or suggest a composition comprising Component A and/or Component C, wherein the composition further comprises Component D and/or Component E. According to the Examiner in the outstanding Office Action, the Pittenger patent discloses a composition comprising Components A and/or C; the Astrup patent discloses a composition comprising Component D; and the Song patent discloses a composition comprising Component E. However, as explained below in the following three paragraphs, there is no teaching or suggestion in the prior art that the composition that is disclosed in the Pittenger patent may combined with the compositions that are disclosed in the Astrup patent and the Song patent.

According to the Examiner in the outstanding Office Action, the Pittenger patent discloses a composition comprising Component A (specifically dibutyryl-cyclic AMP) and/or Component C (specifically forskolin). However, as explained in detail above (see the paragraph bridging pages 5 and 6 of this supplemental response and paragraph 2 on page 6 of this supplemental response), the composition that is disclosed in the Pittenger patent also comprises mesenchymal stem cells and a glucocorticoid substance that induces stem cells to differentiate into the adipogenic lineage.

Pittenger's composition is used in vitro (not in vivo) to isolate and prepare adipocytes (see column 2, lines 27-31, 40-45, and 54-57), which may then be implanted into a patient for tissue augmen-



tation following trauma and cosmetic surgery (see column 3, lines 18-21). Significantly, there is no teaching or suggestion in the prior art that Pittenger's composition may be administered to a patient.

According to the Examiner in the outstanding Office Action, the Astrup patent discloses a composition comprising Component D (specifically isoproterenol); and the Song patent discloses a composition comprising Component E (specifically arachidonic acid). Astrup's composition is administered directly to a patient to reduce the weight of the patient (see Claim 1 in the Astrup patent); and Song's composition is administered directly to a diabetic mammal in order to treat the diabetes (see Claim 1 in the Song patent). Significantly, there is no teaching or suggestion in the prior art that Astrup's composition or Song's composition may be mixed in vitro with mesenchymal stem cells and a glucocorticoid substance in order to induce the stem cells to differentiate into the adipogenic lineage, as called for in the Pittenger patent.

The Pittenger composition, the Astrup composition, and the Song composition are used in very different ways for very different purposes. Specifically, the Pittenger patent discloses a composition that is used in vitro to induces stem cells to differentiate into the adipogenic lineage, while the Astrup and Song patents disclose compositions that are administered directly to patients to treat obesity or diabetes. Nothing in the prior art would motivate someone to combine Pittenger's in vitro composition (which includes mesenchymal stem cells and a glucocorticoid substance) with the in vivo compositions that are disclosed in the Astrup and Song patents. And because nothing in the prior art would motivate someone to prepare a composition comprising Component A and/or Component C and further comprising Component D and/or Component E (as claimed in amended Claim 15), amended

independent Claim 15 is novel and nonobvious over the prior art.

New independent Claim 47 is novel and nonobvious over the prior art because the prior art does not teach or suggest applying the claimed composition to a plant. New Claim 47 claims a method for stimulating growth in a plant comprising applying a composition to the plant, wherein the composition comprises at least one of Components A, B, C, D, and E. According to the Examiner in the outstanding Office Action, the Pittenger patent discloses a composition comprising Component A (specifically dibutyryl-cyclic AMP), Component B (specifically theophylline or caffeine), and/or Component C (specifically forskolin); the Astrup patent discloses a composition comprising Component D (specifically isoproterenol); and the Song patent discloses a composition comprising Component E (specifically arachidonic acid). However, the prior art does not teach or suggest that Components A, B, C, D, and/or E may be applied to a plant to stimulate growth in the plant; and, consequently, new independent Claim 47, which calls for applying the claimed composition to a plant to stimulate growth in the plant, is novel and nonobvious over the prior art.

All of the subclaims (i.e., amended Subclaims 2-5, 7, 9, and 11-14 and new Subclaims 16-46 and 48-61) are novel and nonobvious over the prior art because the prior art does not disclose or suggest the particular features that are claimed in these subclaims. (For example, in the last paragraph on page 2 of the outstanding Office Action, the Examiner finds that currently pending Subclaims 7, 9, and 11 contain allowable subject matter.) In addition, all of these subclaims are further nonobvious over the prior art because they are each dependent on a nonobvious base claim (amended independent Claim 1, 6, 8, or 10 or new independent Claim 15 or 47).

Finally, this supplemental response amends the specification to correct various minor spelling errors; and the corrections are

believed to be obvious to someone with ordinary skill in the art.

It is submitted that the above-identified application is in condition for allowance. Allowance of the application at an early date is solicited.

This supplemental response amends currently pending Claims 1-14 and adds new Claims 15-61. The amendments and additions that are described in the preceding sentence were done to claim the scope of the invention that the Applicants elect to claim and were not done to overcome the prior art, rejections under 35 U.S.C. § 112, or any other rejections or objections. Furthermore, the amendments and additions that are described in the first sentence of this paragraph shall not be considered necessary to overcome the prior art, rejections under 35 U.S.C. § 112, or any other rejections or objections.

The Applicants reserve the right to seek protection for any unclaimed subject matter either subsequently in the prosecution of the present case or in a divisional or continuation application.

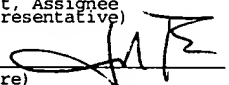
The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to Deposit Account No. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 C.F.R § 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed; and the petition fee

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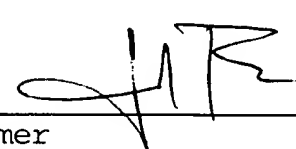
March 25, 2002  
(Date of Deposit)

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(Signature)

3-25-02  
(Date)

Respectfully submitted,

  
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Enclosures: Appendices A, B, C, D, and E



APPENDIX A

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PAGE 1 OF 3

RE: U.S. Patent Application No. 09/829,779  
Applicants: JOSE MARIA GARCIA-MINA FREIRE, ET AL.  
Title: "GROWTH STIMULATING COMPOSITION FOR PLANTS"  
Our Ref.: 618736-3/JP/B-4158

Please replace the antepenultimate paragraph on page 3 of the specification (see lines 22-26 on page 3) with the amended paragraph that is set forth below:

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B<sup>1</sup>  
A precursor compound of cyclic AMP for its transformation to the latter in the interior of the cells, such as the by-product dibutyryl-cyclic AMP. The optimum dosage interval is between 0.1 and 2 ppm, via radicular or foliar.

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APPENDIX A

PAGE 2 OF 3

RE: U.S. Patent Application No. 09/829,779  
Applicants: JOSE MARIA GARCIA-MINA FREIRE, ET AL.  
Title: "GROWTH STIMULATING COMPOSITION FOR PLANTS"  
Our Ref.: 618736-3/JP/B-4158

Please replace the last paragraph on page 4 of the specification (see lines 27-35 on page 4) with the amended paragraph that is set forth below:

B<sup>2</sup>  
The composition object of the invention can be presented mixed with mineral fertilizers (such as ammonium nitrate, monopotassium phosphate, etc.), with phyto regulators (such as cytoquinines, auxines, giberelines, polyamines, n-ethanolamines, sugars . . .) or any type of phytosanitary product (such as fungicides, herbicides, etc.). The proportion of each compound in the mixture can vary between:

1-25% for fertilizers

APPENDIX A

PAGE 3 OF 3

RE: U.S. Patent Application No. 09/829,779  
Applicants: JOSE MARIA GARCIA-MINA FREIRE, ET AL.  
Title: "GROWTH STIMULATING COMPOSITION FOR PLANTS"  
Our Ref.: 618736-3/JP/B-4158

Please replace the second paragraph on page 5 of the specification (see lines 3-22 on page 5) with the amended paragraph that is set forth below:

The composition object of the invention can be formulated with tensoactive agents, such as Tween 80 etc., moistening agents etc. The proportions of the mixture of each compound can vary between:

0.1%-10% tensoactive.

1-10% moistening agents.

EXAMPLE

Composition for 1 kg of product:

1. 0.5 g of Forskolin
2. 1 g of caffeine
3. 0.2 g of 6-benzylaminopurine
4. 200 g of dipotassium phosphate
5. 45 g of urea
6. 753.3 g of water

Order of making:

Continuous stirring and environment temperature (20-25°C)

1. (6)+(4)+(5). Stirring until completely dissolved.
2. 1.+(1)+(2)+(3).



APPENDIX B

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PAGE 1 OF 3

RE: U.S. Patent Application No. 09/829,779  
Applicants: JOSE MARIA GARCIA-MINA FREIRE, ET AL.  
Title: "GROWTH STIMULATING COMPOSITION FOR PLANTS"  
Our Ref.: 618736-3/JP/B-4158

Please amend the antepenultimate paragraph on page 3 of the specification (see lines 22-26 on page 3) as indicated below:

A precursor compound of cyclic AMP for its transformation to the latter in the interior of the cells, such as the by-product [Dibutiril-cyclic] dibutyryl-cyclic AMP. The optimum dosage interval is between 0.1 and 2 ppm, via radicular or foliar.



APPENDIX B

PAGE 2 OF 3

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The composition object of the invention can be presented mixed with mineral fertilizers (such as [amonic] ammonium nitrate, monopotassium phosphate, etc.), with phyto regulators (such as cytoquinines, auxines, giberelines, polyamines, n-ethanolamines, sugars . . .) or any type of phytosanitary product (such as fungicides, herbicides, etc.). The proportion of each compound in the mixture can vary between:

1-25% for fertilizers

## APPENDIX B

PAGE 3 OF 3

RE: U.S. Patent Application No. 09/829,779  
Applicants: JOSE MARIA GARCIA-MINA FREIRE, ET AL.  
Title: "GROWTH STIMULATING COMPOSITION FOR PLANTS"  
Our Ref.: 618736-3/JP/B-4158

Please amend the second paragraph on page 5 of the specification (see lines 3-22 on page 5) as indicated below:

The composition object of the invention can be formulated with tensoactive agents, such as Tween 80 etc., moistening agents etc. The proportions of the mixture of each compound can vary between:

0.1%-10% tensoactive.

1-10% moistening agents.

### EXAMPLE

Composition for 1 kg of product:

1. 0.5 g of Forskolin
2. 1 g of caffeine
3. 0.2 g of [6-Bencilaminopurina] 6-benzylaminopurine
4. 200 g of dipotassium phosphate
5. 45 g of urea
6. 753.3 g of water

Order of making:

Continuous stirring and environment temperature (20-25°C)

1. (6)+(4)+(5). Stirring until completely dissolved.
2. 1.+(1)+(2)+(3).

## APPENDIX C

Re: U.S. Patent Application No. 09/829,779  
Our Ref.: 618736-3/JP/B-4158  
Date: March 25, 2002

Please amend Claims 1-14 as indicated below.

1. (amended once) A growth stimulating composition for [plants, characterized by comprising one or several of the following components:] a plant, wherein the growth stimulating composition is selected from the group consisting of Composition 1, Composition 2, and Composition 3;

wherein the Composition 1 consists essentially of Component A and one or more of Components B, C, D, E, F, G, and H; and wherein the Composition 1 further consists essentially of optionally Component I and optionally Component J;

wherein the Composition 2 consists essentially of the Component C and one or more of the Components A, B, D, E, F, G, and H; and wherein the Composition 2 further consists essentially of optionally the Component I and optionally the Component J;

wherein the Composition 3 consists essentially of the Component A and the Component C; and wherein the Composition 3 optionally further consists essentially of one or more of the Components B, D, E, F, G, H, I, and J;

wherein the Component A is one or more [a] precursor [compound] compounds of cyclic AMP, wherein the precursor compounds are [for its transformation] transformed into [in the latter compound] cyclic AMP [in the interior of the cells] inside a cell of the plant; [,]

wherein the Component B is one or more compounds [a compound] with [the] a capacity to inhibit [the] activity of one or more

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[the enzymes of the] phosphodiesterases [family]; [,]

wherein the Component C is one or more compounds [a compound] with [the] a capacity to stimulate [the] activity of [the enzymes of the] one or more [Adenyl-Cyclase family] adenyl-cyclase enzymes; [,]

wherein the Component D is one or more [an] agonist [compound] compounds of [the]  $\beta$ -adrenergic receptors; [,]

wherein the Component E is one or more [a] chosen [compound between] compounds selected from the group consisting of arachidonic acid and [or a] prostaglandins;

wherein the composition further consists essentially of:

optionally Component F, wherein the Component F is one or more mineral fertilizers;

optionally Component G, wherein the Component G is one or more phyto regulator products;

optionally Component H, wherein the Component H is one or more phytosanitary products;

optionally Component I, wherein the Component I is one or more tensoactive agents; and

optionally Component J, wherein the Component J is one or more moistening agents.

2. (amended once) A [Growth] growth stimulating composition [for plants] in accordance with claim 1, [characterized in that] wherein [the precursor compound of cyclic AMP is Dibutiril-cyclic] the Component A is dibutyryl-cyclic AMP.

3. (amended once) A [Growth] growth stimulating composition [for plants] in accordance with claim 1, [characterized in that]

## APPENDIX C

wherein the one or more compounds [compound] with the capacity to inhibit the activity of [the enzymes of] the one or more phosphodiesterases [family is chosen between] are selected from the group consisting of theophylline, theobromine, [or] and caffeine.

4. (amended once) A [Growth] growth stimulating composition [for plants] in accordance with claim 1, [characterized in that] wherein [the compound with capacity to stimulate the activity of the enzymes of the Adenyl-Cyclase family] the Component C is [Forskolin] forskolin.

5. (amended once) A [Growth] growth stimulating composition [for plants] in accordance with claim 1, [characterized in that] wherein the one or more agonist [compound] compounds of the  $\beta$ -adrenergic receptors [is chosen between] are selected from the group consisting of isoproterenol, epinephrine [(adrenaline)], and [or] norepinephrine [(noradrenaline)].

6. (amended once) A [Growth] growth stimulating composition for a plant [plants in accordance with claim 1, characterized in that] comprising at least one of Components A, B, C, D, and E:

wherein the Component A comprises a precursor compound of cyclic AMP, wherein the precursor compound is transformed into cyclic AMP inside a cell of the plant;

wherein the Component B comprises a compound with a capacity to inhibit activity of one or more phosphodiesterases;

wherein the Component C comprises a compound with a capacity to stimulate activity of one or more adenyl-cyclase enzymes;

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wherein the Component D comprises an agonist compound of  $\beta$ -adrenergic receptors;

wherein the Component E comprises one or more chosen compounds selected from the group consisting of arachidonic acid and prostaglandins; and

wherein the composition further comprises a mineral fertilizer [is added].

7. (amended once) A [Growth] growth stimulating composition [for plants] in accordance with claim 6, [characterized in that] wherein the mineral fertilizer [is chosen between] is selected from the group consisting of [amonic] ammonium nitrates, [or] potassium [phosphate] phosphates, and mixtures thereof.

8. (amended once) A [Growth] growth stimulating composition for a plant [plants in accordance with claim 1, characterized in that] comprising at least one of Components A, B, C, D, and E:

wherein the Component A comprises a precursor compound of cyclic AMP, wherein the precursor compound is transformed into cyclic AMP inside a cell of the plant;

wherein the Component B comprises a compound with a capacity to inhibit activity of one or more phosphodiesterases;

wherein the Component C comprises a compound with a capacity to stimulate activity of one or more adenylyl-cyclase enzymes;

wherein the Component D comprises an agonist compound of  $\beta$ -adrenergic receptors;

wherein the Component E comprises one or more chosen compounds selected from the group consisting of arachidonic acid and prostaglandins; and

## APPENDIX C

wherein the composition further comprises a phytohormone  
product [is added].

9. (amended once) A [Growth] growth stimulating composition  
[for plants] in accordance with claim 8, [characterized in that]  
wherein the phytohormone product is [chosen between] selected  
from the group consisting of cytokinins, auxins, gibberellins,  
polyamines, n-ethanolamines, [or] sugars, and mixtures thereof.

10. (amended once) A [Growth] growth stimulating composition for  
a plant [plants in accordance with claim 1, characterized in that]  
comprising at least one of Components A, B, C, D, and E:

wherein the Component A comprises a precursor compound of  
cyclic AMP, wherein the precursor compound is transformed into  
cyclic AMP inside a cell of the plant;

wherein the Component B comprises a compound with a capacity  
to inhibit activity of one or more phosphodiesterases;

wherein the Component C comprises a compound with a capacity  
to stimulate activity of one or more adenylyl-cyclase enzymes;

wherein the Component D comprises an agonist compound of  $\beta$ -  
adrenergic receptors;

wherein the Component E comprises one or more chosen  
compounds selected from the group consisting of arachidonic acid  
and prostaglandins; and

wherein the composition further comprises a phytosanitary  
product [is added].

11. (amended once) A [Growth] growth stimulating composition

## APPENDIX C

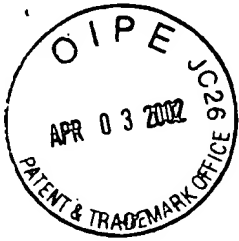
[for plants] in accordance with claim 10, [characterized in that] wherein the phytosanitary product is [chosen between] a fungicide or a herbicide.

12. (amended once) A [Growth] growth stimulating composition [for plants] in accordance with claim 1, [characterized in that] wherein the composition includes the [a] tensoactive agent [is added].

13. (amended twice) A growth stimulating composition [for plants] in accordance with claim 12, wherein the tensoactive agent comprises polyethylene oxide sorbitan mono-oleate.

14. (amended once) A [Growth] growth stimulating composition [for plants] in accordance with claim 1, [characterized in that a] wherein the composition includes the moistening agent [is added].





APPENDIX D

Re: U.S. Patent Application No. 09/829,779

Our Ref.: 618736-3/JP/B-4158

Date: March 25, 2002

Please replace currently pending Claims 1-14 with the amended Claims 1-14, which are set forth below.

*Sub D1*  
1. (amended once) A growth stimulating composition for a plant, wherein the growth stimulating composition is selected from the group consisting of Composition 1, Composition 2, and Composition 3;

wherein the Composition 1 consists essentially of Component A and one or more of Components B, C, D, E, F, G, and H; and wherein the Composition 1 further consists essentially of optionally Component I and optionally Component J;

*B4*  
wherein the Composition 2 consists essentially of the Component C and one or more of the Components A, B, D, E, F, G, and H; and wherein the Composition 2 further consists essentially of optionally the Component I and optionally the Component J;

wherein the Composition 3 consists essentially of the Component A and the Component C; and wherein the Composition 3 optionally further consists essentially of one or more of the Components B, D, E, F, G, H, I, and J;

wherein the Component A is one or more precursor compounds of cyclic AMP, wherein the precursor compounds are transformed into cyclic AMP inside a cell of the plant;

wherein the Component B is one or more compounds with a capacity to inhibit activity of one or more phosphodiesterases;

wherein the Component C is one or more compounds with a capacity to stimulate activity of one or more adenylyl-cyclase

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enzymes;

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D1 wherein the Component D is one or more agonist compounds of  $\beta$ -adrenergic receptors;

wherein the Component E is one or more chosen compounds selected from the group consisting of arachidonic acid and prostaglandins;

wherein the Component F is one or more mineral fertilizers;

wherein the Component G is one or more phyto regulator products;

wherein the Component H is one or more phytosanitary products;

wherein the Component I is one or more tensoactive agents; and

wherein the Component J is one or more moistening agents.

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Cont. 2. (amended once) A growth stimulating composition in accordance with claim 1, wherein the Component A is dibutyryl-cyclic AMP.

3. (amended once) A growth stimulating composition in accordance with claim 1, wherein the one or more compounds with the capacity to inhibit the activity of the one or more phosphodiesterases are selected from the group consisting of theophylline, theobromine, and caffeine.

4. (amended once) A growth stimulating composition in accordance with claim 1, wherein the Component C is forskolin.

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5. (amended once) A growth stimulating composition in accordance with claim 1, wherein the one or more agonist compounds of the  $\beta$ -adrenergic receptors are selected from the group consisting of isoproterenol, epinephrine, and norepinephrine.

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D2  
6. (amended once) A growth stimulating composition for a plant comprising at least one of Components A, B, C, D, and E:

wherein the Component A comprises a precursor compound of cyclic AMP, wherein the precursor compound is transformed into cyclic AMP inside a cell of the plant;

wherein the Component B comprises a compound with a capacity to inhibit activity of one or more phosphodiesterases;

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cont.  
wherein the Component C comprises a compound with a capacity to stimulate activity of one or more adenylyl-cyclase enzymes;

wherein the Component D comprises an agonist compound of  $\beta$ -adrenergic receptors;

wherein the Component E comprises one or more chosen compounds selected from the group consisting of arachidonic acid and prostaglandins; and

wherein the composition further comprises a mineral fertilizer.

7. (amended once) A growth stimulating composition in accordance with claim 6, wherein the mineral fertilizer is selected from the group consisting of ammonium nitrates, potassium phosphates, and mixtures thereof.

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D3  
8. (amended once) A growth stimulating composition for a plant

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*SUB D3* comprising at least one of Components A, B, C, D, and E:

wherein the Component A comprises a precursor compound of cyclic AMP, wherein the precursor compound is transformed into cyclic AMP inside a cell of the plant;

wherein the Component B comprises a compound with a capacity to inhibit activity of one or more phosphodiesterases;

wherein the Component C comprises a compound with a capacity to stimulate activity of one or more adenylyl-cyclase enzymes;

wherein the Component D comprises an agonist compound of  $\beta$ -adrenergic receptors;

*B4 cont.* wherein the Component E comprises one or more chosen compounds selected from the group consisting of arachidonic acid and prostaglandins; and

wherein the composition further comprises a phyto regulator product.

9. (amended once) A growth stimulating composition in accordance with claim 8, wherein the phyto regulator product is selected from the group consisting of cytoquinines, auxines, giberelins, polyamines, n-ethanolamines, sugars, and mixtures thereof.

*SUB D4* 10. (amended once) A growth stimulating composition for a plant comprising at least one of Components A, B, C, D, and E:

wherein the Component A comprises a precursor compound of cyclic AMP, wherein the precursor compound is transformed into cyclic AMP inside a cell of the plant;

wherein the Component B comprises a compound with a capacity to inhibit activity of one or more phosphodiesterases;

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wherein the Component C comprises a compound with a capacity to stimulate activity of one or more adenylyl-cyclase enzymes;

wherein the Component D comprises an agonist compound of  $\beta$ -adrenergic receptors;

wherein the Component E comprises one or more chosen compounds selected from the group consisting of arachidonic acid and prostaglandins; and

wherein the composition further comprises a phytosanitary product.

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cont  
11. (amended once) A growth stimulating composition in accordance with claim 10, wherein the phytosanitary product is a fungicide or a herbicide.

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12. (amended once) A growth stimulating composition in accordance with claim 1, wherein the composition includes the tensoactive agent.

13. (amended twice) A growth stimulating composition in accordance with claim 12, wherein the tensoactive agent comprises polyethylene oxide sorbitan mono-oleate.

14. (amended once) A growth stimulating composition in accordance with claim 1, wherein the composition includes the moistening agent.

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Please add the following new Claims 15-61.

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15. A growth stimulating composition for a plant comprising Component A and/or Component C; wherein the composition further comprises Component D and/or Component E; wherein the composition further optionally comprises Component B;

wherein the Component A comprises a precursor compound of cyclic AMP, wherein the precursor compound is transformed into cyclic AMP inside a cell of the plant;

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cont.

wherein the Component B comprises a compound with a capacity to inhibit activity of one or more phosphodiesterases;

wherein the Component C comprises a compound with a capacity to stimulate activity of one or more adenylyl-cyclase enzymes;

wherein the Component D comprises an agonist compound of  $\beta$ -adrenergic receptors; and

wherein the Component E comprises one or more chosen compounds selected from the group consisting of arachidonic acid and prostaglandins.

16. A composition as claimed in Claim 15, wherein the Component A comprises dibutyryl-cyclic AMP;

wherein the Component B comprises theophylline, theobromine, or caffeine;

wherein the Component C comprises forskolin; and

wherein the Component D comprises isoproterenol, epinephrine,

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or norepinephrine.

17. A composition as claimed in Claim 15, wherein the composition comprises the Component A and the Component D.

18. A composition as claimed in Claim 15, wherein the composition comprises the Component A and the Component E.

19. A composition as claimed in Claim 15, wherein the composition comprises the Component C and the Component D.

20. A composition as claimed in Claim 15, wherein the composition comprises the Component C and the Component E.

21. A composition as claimed in Claim 18, wherein the Component E comprises one or more of the prostaglandins.

22. A composition as claimed in Claim 20, wherein the Component E comprises one or more of the prostaglandins.

23. A composition as claimed in Claim 16, wherein the composition comprises the Component A and the Component D.

24. A composition as claimed in Claim 16, wherein the composition comprises the Component A and the Component E.

25. A composition as claimed in Claim 16, wherein the composition comprises the Component C and the Component D.

26. A composition as claimed in Claim 16, wherein the composition

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comprises the Component C and the Component E.

27. A composition as claimed in Claim 24, wherein the Component E comprises one or more of the prostaglandins.

28. A composition as claimed in Claim 26, wherein the Component E comprises one or more of the prostaglandins.

29. A composition as claimed in Claim 15, wherein the composition further comprises at least one of Components F, G, and H;

wherein the Component F comprises a mineral fertilizer;

wherein the Component G comprises a phyto regulator product;

and

wherein the Component H comprises a phytosanitary product.

30. A composition as claimed in Claim 29, wherein the Component F comprises ammonium nitrate, potassium phosphate, or urea;

wherein the Component G is selected from the group consisting of cytoquinines, auxines, giberelines, polyamines, n-ethanolamines, sugars, and mixtures thereof; and

wherein the Component H comprises a fungicide or a herbicide.

31. A composition as claimed in Claim 16, wherein the composition further comprises at least one of Components F, G, and H;

wherein the Component F comprises a mineral fertilizer;

wherein the Component G comprises a phyto regulator product;

and

wherein the Component H comprises a phytosanitary product.

32. A composition as claimed in Claim 31, wherein the Component F comprises ammonium nitrate, potassium phosphate, or urea;



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DE/ wherein the Component G is selected from the group consisting of cytoquinines, auxines, giberelines, polyamines, n-ethanolamines, sugars, and mixtures thereof; and

wherein the Component H comprises a fungicide or a herbicide.

33. A composition as claimed in Claim 29, wherein the Component F comprises ammonium nitrate, potassium phosphate, or urea;

wherein the Component G is selected from the group consisting of cytoquinines, auxines, giberelines, polyamines, n-ethanolamines, and mixtures thereof; and

wherein the Component H comprises a fungicide or a herbicide.

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cont. 34. A composition as claimed in Claim 31, wherein the Component F comprises ammonium nitrate, potassium phosphate, or urea;

wherein the Component G is selected from the group consisting of cytoquinines, auxines, giberelines, polyamines, n-ethanolamines, and mixtures thereof; and

wherein the Component H comprises a fungicide or a herbicide.

35. A composition as claimed in Claim 30, wherein the Component E comprises one or more of the prostaglandins.

36. A composition as claimed in Claim 32, wherein the Component E comprises one or more of the prostaglandins.

37. A composition as claimed in Claim 33, wherein the Component E comprises one or more of the prostaglandins.

38. A composition as claimed in Claim 34, wherein the Component E comprises one or more of the prostaglandins.

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39. A composition as claimed in Claim 6, wherein the mineral fertilizer is selected from the group consisting of ammonium nitrates, potassium phosphates, urea, and mixtures thereof.

40. A composition as claimed in Claim 8, wherein the phyto regulator product is selected from the group consisting of cytoquinines, auxines, giberelines, polyamines, n-ethanolamines, and mixtures thereof.

41. A composition as claimed in Claim 7, wherein the Component A comprises dibutyryl-cyclic AMP;

wherein the Component B comprises theophylline, theobromine, or caffeine;

wherein the Component C comprises forskolin; and

wherein the Component D comprises isoproterenol, epinephrine, or norepinephrine.

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cont  
42. A composition as claimed in Claim 9, wherein the Component A comprises dibutyryl-cyclic AMP;

wherein the Component B comprises theophylline, theobromine, or caffeine;

wherein the Component C comprises forskolin; and

wherein the Component D comprises isoproterenol, epinephrine, or norepinephrine.

43. A composition as claimed in Claim 11, wherein the Component A comprises dibutyryl-cyclic AMP;

wherein the Component B comprises theophylline, theobromine, or caffeine;

wherein the Component C comprises forskolin; and

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wherein the Component D comprises isoproterenol, epinephrine, or norepinephrine.

44. A composition as claimed in Claim 39, wherein the Component A comprises dibutyryl-cyclic AMP;

wherein the Component B comprises theophylline, theobromine, or caffeine;

wherein the Component C comprises forskolin; and

wherein the Component D comprises isoproterenol, epinephrine, or norepinephrine.

45. A composition as claimed in Claim 40, wherein the Component A comprises dibutyryl-cyclic AMP;

wherein the Component B comprises theophylline, theobromine, or caffeine;

wherein the Component C comprises forskolin; and

*B4 cont.*  
wherein the Component D comprises isoproterenol, epinephrine, or norepinephrine.

46. A growth stimulating composition as claimed in Claim 1, wherein the Component A is dibutyryl-cyclic AMP;

wherein the one or more compounds with the capacity to inhibit the activity of the one or more phosphodiesterases are selected from the group consisting of theophylline, theobromine, and caffeine;

wherein the Component C is forskolin;

wherein the one or more agonist compounds of the  $\beta$ -adrenergic receptors are selected from the group consisting of isoproterenol, epinephrine, and norepinephrine;

wherein the one or more mineral fertilizers are selected from the group consisting of ammonium nitrates, potassium phosphates,

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and urea;

wherein the one or more phytohormone products are selected from the group consisting of cytoquinines, auxines, gibberellins, polyamines, n-ethanolamines, sugars, and mixtures thereof;

wherein the one or more phytosanitary products are selected from the group consisting of fungicides and herbicides;

wherein the Component I is polyethylene oxide sorbitan mono-oleate; and

wherein the Component J is water.

47. A method for stimulating growth in a plant, the method comprising applying a composition to the plant, wherein the composition comprises at least one of Components A, B, C, D, and E;

wherein the Component A comprises a precursor compound of cyclic AMP, wherein the precursor compound is transformed into cyclic AMP inside a cell of the plant;

wherein the Component B comprises a compound with a capacity to inhibit activity of one or more phosphodiesterases;

wherein the Component C comprises a compound with a capacity to stimulate activity of one or more adenylyl-cyclase enzymes;

wherein the Component D comprises an agonist compound of  $\beta$ -adrenergic receptors;

wherein the Component E comprises one or more chosen compounds selected from the group consisting of arachidonic acid and prostaglandins.

48. A method as claimed in Claim 47, wherein the Component A comprises dibutyryl-cyclic AMP;

wherein the Component B comprises theophylline, theobromine, or caffeine;

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wherein the Component C comprises forskolin; and  
wherein the Component D comprises isoproterenol, epinephrine,  
or norepinephrine.

49. A method as claimed in Claim 47, wherein the plant is an adult plant, and wherein the composition is applied radicularly or foliarly.

50. A method as claimed in Claim 48, wherein the plant is an adult plant, and wherein the composition is applied radicularly or foliarly.

51. A method for stimulating growth in a plant, the method comprising applying the composition claimed in Claim 15 to the plant.

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cont.

52. A method for stimulating growth in an adult plant, the method comprising applying the composition claimed in Claim 15 to the adult plant radicularly or foliarly.

53. A method for stimulating growth in a plant, the method comprising applying the composition claimed in Claim 16 to the plant.

54. A method for stimulating growth in an adult plant, the method comprising applying the composition claimed in Claim 16 to the adult plant radicularly or foliarly.

55. A method for stimulating growth in a plant, the method comprising applying the composition claimed in Claim 29 to the plant.

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56. A method for stimulating growth in an adult plant, the method comprising applying the composition claimed in Claim 29 to the adult plant radicularly or foliarly.

57. A method for stimulating growth in a plant, the method comprising applying the composition claimed in Claim 30 to the plant.

58. A method for stimulating growth in an adult plant, the method comprising applying the composition claimed in Claim 30 to the adult plant radicularly or foliarly.

B4 cont.  
59. A method for stimulating growth in a plant, the method comprising applying the composition claimed in Claim 34 to the plant.

60. A method for stimulating growth in an adult plant, the method comprising applying the composition claimed in Claim 34 to the adult plant radicularly or foliarly.

61. A growth stimulating composition as claimed in Claim 1, wherein the Component A is dibutyryl-cyclic AMP;

wherein the one or more compounds with the capacity to inhibit the activity of the one or more phosphodiesterases are selected from the group consisting of theophylline, theobromine, and caffeine;

wherein the Component C is forskolin;

wherein the one or more agonist compounds of the  $\beta$ -adrenergic receptors are selected from the group consisting of isoproterenol, epinephrine, and norepinephrine;

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wherein the one or more mineral fertilizers are selected from the group consisting of ammonium nitrates, potassium phosphates, and urea;

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consid* wherein the one or more phyto regulator products are selected from the group consisting of cytoquinines, auxines, giberelines, polyamines, n-ethanolamines, and mixtures thereof;

wherein the one or more phytosanitary products are selected from the group consisting of fungicides and herbicides;

wherein the Component I is polyethylene oxide sorbitan mono-oleate; and

wherein the Component J is water.

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